Pakistan’s Exports and Global Economy: Export Competitiveness and Efficiency of Toys and Games

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ARTICLE DETAILS

ABSTRACT

The aim of this study is to examine the export performance and competitiveness of Pakistan's toy exports by using different indices of revealed comparative advantage. The data were looked at from the International Trade Centre (ITC) for Pakistan's toys exports during 2004-2020. The results of this study show that Pakistan enjoyed a comparative advantage in exporting toys to the world market during 2004-2020, because the RCA index is greater than 1. The positive values of RSCA and LnRCA indicate that Pakistan had a CA in the concerned sector during 2004-2020. The study also observed that Pakistan had a competitive advantage by employing Vollrath index (RCA#). In addition, the revealed competitiveness index (RC) indicates that Pakistan experienced competitiveness in the toy export sector. The RMA index shows that Pakistan also enjoyed a comparative advantage in the imports of toys during 2004-2020. This means that Pakistan also imports these products from other economies of the world. The index of RTA describes that Pakistan had a net comparative advantage in this sector during analysis. TBI illustrates that Pakistan is the net-exporter in the toys and games sector in the global economy. Pakistan's toy manufacturers need to find new innovative and technologically advanced methods to stimulate domestic toy production and exports.

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1. Introduction

Toys play an important role as cultural ambassadors reflecting five thousand years of sub-
continental civilization. Toy-making industries across the country are reflective of the cultural
diversity of the economy (Sunny and Sund, 2014). Pakistan manufactures a wide variety of toys
namely mechanical, plastic, soft dolls and animals, puzzles, board games, metal and tin, educational
games, wood, battery operated pullback toys etc. The toys of Pakistan are made from diverse raw
material such as wood, plastic, metal, rubber, textile etc (Gul et al., 2021). The industry of toys has
witnessed a lot of changes over the last decades in terms of categories of toys, eye-catching design,
innovation and other aspects. Traditionally, the toy sector is a labour intensive industry; it provides
tremendous job opportunities in the economy.

Competitiveness of an economy has been explained in numerous ways by a number of
studies, but the most accepted definition is, “The degree to which a country can, under free and fair
market condition, produces goods and services which meet the test of international markets, while
simultaneously maintaining and expanding the real incomes of its people in the long term” given by
the OECD (Stevans et al., 2012). Competitiveness is one of the most widely used terms in global
economics and considerable efforts have been made to enhance the perceptive of competitiveness in
economic theory. One of the more famous threads of literature is comparative advantage that
combines the global trade theories with competitiveness, supported by Balassa’s (Balassa, 1965)
well-known index of RCA. Since this founding work, an extensive literature has been dedicated to
analysis of RCA of global trade (Koopman et al., 2014 and Costinot et al., 2012).

Theoretically, the idea of competitiveness cannot be separated from the theories of
international trade. To Adam Smith (Smith, 1776), the trade of economies with each other depends
on absolute advantage-the economy produces a commodity in which it has an absolute advantage
and exchange against commodities in which it has no such advantage. In simple, economies export
those commodities for which they use only a few inputs in production, and import those
commodities that other countries can produce by utilizing only a few inputs, reflecting absolute
differences in labour productivity. The idea was put forward by Ricardo (Ricardo, 1817), arguing that
not absolute but the comparative advantages are accountable for trade among different nations. In
the theory of Ricardo, Technological differences in production constitute the basis for comparative
advantage, and therefore trade and production are driven by the most efficient use of resources.
Ricardo (Ricardo, 1817), the economies are expected to specialize in those products for which they
have a comparative advantage, although the technological superiority does not ensure competitiveness.

This study contributes to the available literature on the competitiveness of world trade in toys
and games in three ways. First, the present study utilizes the theory of RCA on the export sector of
toys and games where similar study has not been conducted so far. Second, it examines the
Pakistan’s economy from a development economic perspective, thereby describing aspects of trade-
based development. Third, it identifies the competitive position of the concerned products and
thereby suggests some policy reforms for country’s policy and decision makers. The present study is
organized as follows. First, the introduction, theoretical background and a review of literature are
provided to set the scene. Second, the depiction of data and methods and materials utilized is
presented, followed by the major characteristics of the toys and games trade of Pakistan. The third
portion of the study examines the comparative advantages of toys and games in the global market.
In addition, the final portion concludes.
2. Review of literature

The idea of comparative advantage is widely used in the literature to appraise the patterns of trade and specialization of countries in products having a competitive edge (Prasad, 2004). The theory of comparative advantage depend on David Ricardo’s (1817) study is one of oldest theory of trade in the world market (Ricardo, 2007). Albert Makochekanwa (2007) measured the comparative advantage of Botswana by employing RCA index from 1999-2004 and concluded that Botswana had a CA in copper matte, meat of bovine animals, and diamonds, among other products. The index of RCA was employed by Hyun and Hong (2011) to measure the comparative advantage of Korea and China from 1992-2009. The findings of this study highlights that RCA has moved from low technology commodities to high technology commodities in Korea during the above mentioned time span. Moreover, the findings show that China still maintains a CA in low technology commodities such as textiles and clothing. Different indices of RSCA were employed by Sachithra et al., (2012) to identify the international export competitiveness of Sri Lanka. The results of the study show that Sri Lanka had a CA in some leading exports.

Fei Zheng et al., (2012) conducted a study to examine the export performance of Guangdong’s (China) toy export industry in post-crisis era in the global market. Further, this study also measures the determinants of export performance of toy exports from Guangdong. A study was conducted by Ignjatijevi et al., (2014) to measure the comparative advantage and competitiveness of Dounbe economies by utilizing different indices of revealed comparative advantage. The findings of the analysis illustrate that Czech Republic, Germany, Hungary, Ukraine and Serbia had increased competitiveness in global market. The competitiveness of Agro-processed products was investigated by Offie and D Oduro (2014) by employing several RCA indices during 2004-2011. Different indices of RCA were employed by Erkan and Saricoban (2014) to measure the competitiveness of Turkey and EU+13 economies in the science-based commodities from 1993-2012 and concluded that these products had not a significant impact on the exports of selected countries.

Gupta (2015) examine the application of the models of comparative advantage and competitive advantage in the literature. The purpose of this study is to examine a link between the rules and principles of competitive and comparative advantage, and outline a synthesis of the two principles as a guiding force for measuring success of economies in global trade. The competitiveness of toy sector of Turkey was examined by Kara and Erkan (2018) by utilizing Balassa and Vollrath index during 2000-2016. The findings of the study illustrated that Turkey had a comparative disadvantage in the toy export sector during the selected time span.

Siddiqui and Farooque (2019) scrutinized the trade performance of toys and games in the bilateral trade of India and China in both import and export. The current study also examined the challenges and problems faced by these industries from the selected products imported from China in a large scale. The competitiveness and comparative advantage of ASEAN-5 countries was measured by Maqbool et al., (2021) by employing RCA indices from 2003-2020. The results of the study showed that Malaysia, Singapore, Philippines and Thailand enjoyed a comparative and competitive advantage, while Indonesia had a comparative disadvantage in the electrical machinery in the world market.

As far as Pakistan is concerned, Akhtar et al., (2013) measured the competitiveness in the horticultural sector of Pakistan by utilizing several indices of RCA. The RCA index was employed by Shujaat and Waheed (2017) to measure the export competitiveness of Pakistan in the global market.
from 2003-2014. The determinants of export competitiveness were examined by Irshad and Xin (2017) by utilizing indices of revealed comparative advantage and concluded that Pakistan was not one of the world’s major trading partners. Abbas and Muhammed (2016) investigated the competitiveness of Pakistan’s exports over eight Asian economies and nine European countries during 2003-2013 by employing RCA index. The findings of the analysis indicate that Pakistan had high CA in the low value added commodities in the selected economies. Competitiveness and comparative advantage of leather sector of Pakistan was examined by Maqbool et al., (2018) by utilizing different indices of RCA. Maqbool et al., (2019) employed several indices of revealed comparative advantage to investigate the comparative advantage in the cotton sector of Pakistan and concluded that Pakistan was competitive in this sector. The comparative advantage and product mapping of mineral sector of Pakistan was measured by Maqbool et al., (2020) by employing different RCA indices during 2003-2018. Maqbool et al., (2021) examined the comparative advantage and competitiveness in the fruit sector of Pakistan by applying several indices of revealed comparative advantage during 2004-2019.

The aim of current study is to measure the competitiveness and comparative advantage in the toys and games export sector of Pakistan in the global market. This study has utilized RCA, RSCA, LnRCA, RCA#, RMA, RTA, TBI and RC indices to examine competitiveness in this sector from 2004-2020. Though many studies have utilized several indices to measure the competitiveness and comparative advantage of different sectors including the toys and games, yet no valuable study has been employed such number of RCA indices to examine comparative advantage and competitiveness of toys and games sector as the current study has. The present study will benefit policymakers and academics from formulating policies to stimulate the economy.

3. Methods and Material

The data was collected from International Trade Center (ITC) for Pakistan’s toys and games product group 95 during 2004-2020 to measure the export performance and competitiveness. Liesner (1958) initially start the idea of revealed comparative advantage index and then Balassa (1965) operationalized the index to examine the concept of CA of the concerned commodity (Balassa, 1965). The index of RCA has been explained as the ratio of an economy’s export in a particular product to its share in total merchandise exports (Balassa and Marcus, 1989).

\[
RCA = \frac{\frac{X_i^t}{\sum X_i^t}}{\frac{X_i^w}{\sum X_i^w}}
\]

(Source: Erkan and Kazim, 2014)

Where, \(X_i^t=\)Toys exports of Pakistan, \(\sum X_i^t=\) Pakistan’s total exports, \(X_i^w=\) Global toy exports and \(\sum X_i^w=\) Total exports of the world.

When the index of RCA>1 shows comparative advantage in the concerned economy, while RCA<1 depicts a comparative disadvantage (Rivlin, 2000). This study also used logarithms to the Balassa index of RCA and LnRCA>0 highlights CA, while LnRCA<0 showing comparative disadvantage (Faustino, 2008). To control the skewness problem, Revealed symmetric comparative Advantage index (RSCA) is utilized and this index is explained as follow.
RSCA = \frac{RCA-1}{RCA+1} \quad \text{(Source: Maqbool et al., 2019)}

This index lies between +1 and -1 and avoids the problem with zero values which occur in the logarithms transformation (Erkan and Saricoban, 2014).

Vollrath (1991) also introduced the index for CA, and it is considered to be a better measure of competitiveness because the current index eliminates the dilemma of double-counting in the global trade (Gnidchenko and Salnikov, 2015).

\[
\text{RCA}\# = \frac{\left(\sum w_{ij}\frac{\sum w_{ij} - w_{ij}}{\sum w_{ij}}\right)}{\left(\sum w_{ij}\frac{\sum w_{ij} - (\sum w_{ij} - w_{ij})}{\sum w_{ij}}\right)}
\quad \text{(Source: Topcu and Sarigul, 2015)}
\]

Where, \(w_{ij}\) = Pakistan’s toy exports, \(\sum w_{ij}\) = Pakistan’s total exports, \(\sum w_{ij}\) = World’s toy exports and \(\sum \sum w_{ij}\) = World’s total exports.

The Relative Trade Advantage index (RTA) is employed to measure the net trade advantage in the toy’s exports sector. This index is measured as the difference between RCA and RMA.

\[
RTA = RCA - RMA = \frac{E^F_i}{\sum E^F_i} - \frac{M^F_i}{\sum M^F_i}
\]

\quad \text{(Source: Akhtar et al., 2009)}

Where, \(M^F_i\) = Imports of toys of the economy, \(\sum M^F_i\) = Total imports of the economy, \(M^W_i\) = Toys imports of world, \(\sum M^W_i\) = Total imports of the world

Another index of Revealed Competitiveness (RC) was developed by Vollrath (1991) to examine the competitiveness. This index is measured as the difference between lnRCA and lnRMA.

\[
RC = \lnRCA - \lnRMA \quad \text{(Source; Ignjatijevic et al., 2013)}
\]

Moreover, this study also employed Trade Balance Index (TBI) to examine whether an economy has specialization in the selected exports (as net-exporter) or in the selected imports (as net-importer) for a specific group of products. Lafay (1992) used TBI to measure the review comparative advantage.

\[
TBI = \frac{X-M}{X+M} \quad \text{(Source; Sachithra et al., 2014)}
\]

4. Results and Discussions

The aim of the current study is to examine export performance and competitiveness of toy exports of Pakistan in the global market by employing different indices of Revealed Comparative Advantage during 2004-2020.
Table 1: Various growth rates of export and import related to the toys and games sector from 2004-2020

<table>
<thead>
<tr>
<th>Years</th>
<th>TEOP</th>
<th>TEOW</th>
<th>TEP</th>
<th>TIOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>-</td>
<td>-</td>
<td>27.53</td>
<td>36.395</td>
</tr>
<tr>
<td>2005</td>
<td>9.804</td>
<td>13.519</td>
<td>5.4994</td>
<td>29.992</td>
</tr>
<tr>
<td>2006</td>
<td>6.117</td>
<td>10.787</td>
<td>5.3478</td>
<td>6.5899</td>
</tr>
<tr>
<td>2007</td>
<td>-30.8</td>
<td>22.345</td>
<td>5.3478</td>
<td>-5.389</td>
</tr>
<tr>
<td>2008</td>
<td>7.306</td>
<td>17.357</td>
<td>6.389</td>
<td>2.8787</td>
</tr>
<tr>
<td>2010</td>
<td>23.58</td>
<td>2.048</td>
<td>21.979</td>
<td>45.839</td>
</tr>
<tr>
<td>2012</td>
<td>-2.73</td>
<td>-2.796</td>
<td>2.0607</td>
<td>-10.16</td>
</tr>
<tr>
<td>2013</td>
<td>0.986</td>
<td>-1.581</td>
<td>-2.8808</td>
<td>-4.573</td>
</tr>
<tr>
<td>2014</td>
<td>19.48</td>
<td>3.9655</td>
<td>-1.5871</td>
<td>32.162</td>
</tr>
<tr>
<td>2015</td>
<td>-11.9</td>
<td>0.9384</td>
<td>3.323</td>
<td>32.162</td>
</tr>
<tr>
<td>2016</td>
<td>-5.17</td>
<td>2.0853</td>
<td>3.323</td>
<td>32.162</td>
</tr>
<tr>
<td>2017</td>
<td>-6.97</td>
<td>19.269</td>
<td>3.323</td>
<td>32.162</td>
</tr>
<tr>
<td>2018</td>
<td>6.424</td>
<td>5.4225</td>
<td>30.665</td>
<td>32.162</td>
</tr>
<tr>
<td>2019</td>
<td>2.945</td>
<td>2.6134</td>
<td>30.665</td>
<td>32.162</td>
</tr>
<tr>
<td>2020</td>
<td>-20.6</td>
<td>7.8747</td>
<td>30.665</td>
<td>32.162</td>
</tr>
</tbody>
</table>

Sources: Authors own calculations based on ITC. Where, TEOP= Toys export of Pakistan, TEOW= Toys export of World, TEP= Total export of Pakistan and TIP= Toys Import of Pakistan.

Table 1 highlights the import and export growth rates of toys and games of Pakistan. A positive and negative trend of growth was observed during 2004-2020.

Table 2: Various Revealed Comparative Advantage Indices related to the toys and games sector from 2004-2020

<table>
<thead>
<tr>
<th>Years</th>
<th>RCA</th>
<th>RSCA</th>
<th>LNRCA</th>
<th>RCA#</th>
<th>RMA</th>
<th>RTA</th>
<th>TBI</th>
<th>RC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>3.47</td>
<td>0.553</td>
<td>1.244</td>
<td>3.534</td>
<td>0.148</td>
<td>3.323</td>
<td>0.875</td>
<td>3.158</td>
</tr>
<tr>
<td>2005</td>
<td>2.99</td>
<td>0.499</td>
<td>1.096</td>
<td>3.036</td>
<td>0.123</td>
<td>2.868</td>
<td>0.847</td>
<td>3.19</td>
</tr>
<tr>
<td>2006</td>
<td>3.14</td>
<td>0.517</td>
<td>1.144</td>
<td>3.189</td>
<td>0.142</td>
<td>2.997</td>
<td>0.816</td>
<td>3.095</td>
</tr>
<tr>
<td>2007</td>
<td>1.95</td>
<td>0.322</td>
<td>0.667</td>
<td>1.963</td>
<td>0.111</td>
<td>1.838</td>
<td>0.759</td>
<td>2.862</td>
</tr>
<tr>
<td>2008</td>
<td>1.81</td>
<td>0.289</td>
<td>0.594</td>
<td>1.822</td>
<td>0.093</td>
<td>1.718</td>
<td>0.76</td>
<td>2.964</td>
</tr>
<tr>
<td>2009</td>
<td>1.47</td>
<td>0.189</td>
<td>0.383</td>
<td>1.473</td>
<td>0.117</td>
<td>1.35</td>
<td>0.688</td>
<td>2.526</td>
</tr>
<tr>
<td>2010</td>
<td>1.78</td>
<td>0.281</td>
<td>0.577</td>
<td>1.7901</td>
<td>0.171</td>
<td>1.609</td>
<td>0.642</td>
<td>2.342</td>
</tr>
<tr>
<td>2011</td>
<td>1.74</td>
<td>0.27</td>
<td>0.553</td>
<td>1.747</td>
<td>0.187</td>
<td>1.551</td>
<td>0.635</td>
<td>2.228</td>
</tr>
<tr>
<td>2012</td>
<td>1.82</td>
<td>0.291</td>
<td>0.6</td>
<td>1.8309</td>
<td>0.178</td>
<td>1.644</td>
<td>0.658</td>
<td>2.326</td>
</tr>
<tr>
<td>2013</td>
<td>1.89</td>
<td>0.308</td>
<td>0.637</td>
<td>1.9013</td>
<td>0.18</td>
<td>1.711</td>
<td>0.671</td>
<td>2.352</td>
</tr>
<tr>
<td>2014</td>
<td>2.21</td>
<td>0.377</td>
<td>0.792</td>
<td>2.2245</td>
<td>0.209</td>
<td>1.999</td>
<td>0.643</td>
<td>2.357</td>
</tr>
<tr>
<td>2015</td>
<td>1.88</td>
<td>0.305</td>
<td>0.629</td>
<td>1.8877</td>
<td>0.268</td>
<td>1.609</td>
<td>0.513</td>
<td>1.947</td>
</tr>
<tr>
<td>2016</td>
<td>1.82</td>
<td>0.29</td>
<td>0.598</td>
<td>1.8297</td>
<td>0.237</td>
<td>1.582</td>
<td>0.505</td>
<td>2.04</td>
</tr>
<tr>
<td>2017</td>
<td>1.45</td>
<td>0.183</td>
<td>0.371</td>
<td>1.4537</td>
<td>0.248</td>
<td>1.201</td>
<td>0.367</td>
<td>1.766</td>
</tr>
<tr>
<td>2018</td>
<td>1.49</td>
<td>0.198</td>
<td>0.402</td>
<td>1.4999</td>
<td>0.189</td>
<td>1.305</td>
<td>0.503</td>
<td>2.068</td>
</tr>
<tr>
<td>2019</td>
<td>1.45</td>
<td>0.183</td>
<td>0.37</td>
<td>1.4523</td>
<td>0.168</td>
<td>1.279</td>
<td>0.616</td>
<td>2.155</td>
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<tr>
<td>2020</td>
<td>1.06</td>
<td>0.027</td>
<td>0.054</td>
<td>1.056</td>
<td>0.127</td>
<td>0.928</td>
<td>0.629</td>
<td>2.114</td>
</tr>
</tbody>
</table>

Sources: Authors own calculations based on ITC.
In table 2, the findings highlight that Pakistan had a comparative advantage in the toys export in the global market during 2004-2020, because the RCA index is greater than 1. The trend of RCA index declined from 2004 to 2020 because low quality, new world trends, limited categories of toys, brand knowledge, higher exchange rates and limited online stores (Amina Mustafa, 2020). The positive values of RSCA and LnRCA indicate that Pakistan had a CA in the concerned sector during 2004-2020. The study also observed that Pakistan had a competitive advantage by employing Vollrath index (RCA#) (Wizarat & Ahmed, 2016). In addition, the index of revealed competitiveness (RC) indicates that Pakistan experienced competitiveness in the toy export sector. The RMA index shows that Pakistan also had a comparative advantage in the imports of toys during 2004-2020. This means that Pakistan also imports these products from other economies of the world. The index of RTA describes that Pakistan had a net comparative advantage in this sector during analysis. TBI illustrates that Pakistan is the net-exporter in the toys sector in the global economy.

5. Conclusion

The primary purpose of the current study is to measure the comparative advantage and competitiveness in the toys and games sector of Pakistan during 2004-2020. The study employed RCA, RSCA, LnRCA, RC, Vollrath index, RMA, TBI and RTA to measure competitiveness. The findings of RCA, RSCA and LnRCA show that Pakistan had a comparative advantage in the toys export in the global market during 2004-2020. The revealed competitiveness index (RC) indicates that Pakistan experienced competitiveness in the toy export sector. The RMA index depicts that Pakistan also had a comparative advantage in the imports of toys during 2004-2020. This means that Pakistan also imports these products from other economies of the world. The index of RTA describes that Pakistan had a net comparative advantage in this sector during analysis. TBI illustrates that Pakistan is the net-exporter in the toys sector in the global economy. The government of Pakistan has been promoting domestic toy manufacturing and exports through various initiatives. At the same time, Pakistan’s toy manufacturers need to find new innovative and technologically advanced methods to stimulate domestic toy production and exports.

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